

IN THE CLAIMS

Claim 1 (withdrawn): Pulverulent active substance formulations comprised of

- particles of at least one active substance A) which is solid at room temperature,
- at least one dispersant B),
- a coating material E), and
- optionally additives C),

wherein the individual active substance particles are in an amorphous state, have an average diameter of not more than 1 μm , and are coated with coating material E.

Claim 2 (withdrawn): Active substance formulations according to Claim 1, wherein active substance A) is selected from the group consisting of ibuprofen, clotrimazole, fluconazole, indoxacarb, acetylsalicylic acid and ciprofloxazin.

Claim 3 (withdrawn): Active substance formulations according to Claim 1, wherein active substance A) is selected from the group consisting of fungicides, bactericides, insecticides, acaricides, nematocides, molluscicides, herbicides and plant growth regulators.

Claim 4 (withdrawn): Active substance formulations according to Claim 1, wherein active substance A) is selected from the group consisting of vitamins, carotenoids and flavors.

Claim 5 (withdrawn): Active substance formulations according to Claim 1 wherein dispersants B) are selected from the group consisting of nonionogenic, anionic, cationic and zwitterionic substances having surface-active properties.

Claim 6 (withdrawn): Active substance formulations according to Claim 1, comprising additives C) wherein additives C) are selected from the group consisting of penetrants, defoamers, low-temperature stabilizers, preservatives, dyes, redispersants, disintegrants, inert fillers and film formers.

Claim 7 (withdrawn): Active substance formulations according to Claim 1, wherein coating material E) is selected from the group consisting of polyvinyl alcohol, polyvinylpyrrolidone and saccharides.

Claim 8 (withdrawn): Active substance formulations according to Claim 7, wherein said coating material E is a saccharide and said saccharide is grape sugar, cane sugar or a polysaccharide.

Claim 9 (withdrawn): Active substance formulations according to Claim 1, comprising

- from 10 to 50% by weight active substances A),
- from 5 to 50% by weight dispersant B)
- from 10 to 30% by weight coating material E), and
- from 0 to 50% by weight additives C).

Claim 10 (withdrawn): Active substance formulation according to Claim 7 or 9 wherein said coating material E) is polyvinyl alcohol.

Claim 11 (withdrawn): Active substance formulation according to Claim 9, wherein said amount of active substance A) is from 15 to 40% by weight, said amount of dispersant B) is from 7.5 to 40% by weight, the amount of said coating material E) is from 15 to 30% by weight and the amount of said additives C) is from 0 to 40% by weight.

Claim 12 (withdrawn): Active substance formulations according to Claim 1, wherein said particles have a number average diameter of from 10 to 1,000 nm.

Claim 13 (withdrawn): Active substance formulations according to Claim 12, wherein said number average diameter is from 40 to 500 nm.

Claim 14 (withdrawn): Active substance formulations according to Claim 1, wherein said coating material E) is polyvinyl alcohol, said active substance formulations are in the form of capsules of said polyvinyl alcohol and said capsules have an average capsule diameter of from 50 to 500 μm .

Claim 15 (withdrawn): Active substance formulations according to Claim 14, wherein said average capsule diameter is from 10 to 150 μm .

Claim 16 (**currently amended**): Process for producing pulverulent active substance formulations comprised of:

- particles of at least one active substance A) which is solid at room temperature,
- at least one dispersant B),
- a coating material E), and
- optionally additives C),

wherein the particles of active substance A) are in an amorphous state, have an average diameter of not more than 1 μm , and are coated with coating material E)

said process comprising:

- a) suspending at least one active substance A) which is solid at room temperature, at least one dispersant B), and optionally additives C) in an aqueous phase,
- b) adding at least one compressible fluid D) in the supercritical state under pressure to the suspension formed in a),
- c) heating the mixture formed in b) until the solid components are liquefied to form a dispersion,
- d) homogenizing the dispersion formed in c) to yield a homogenized dispersion and then adding an aqueous solution of coating material E), and optionally additives C), to the homogenized dispersion
- e) depressurizing the homogenized dispersion and subjecting it to drying.

Claim 17 (original): Process according to Claim 16, wherein step a) is carried out at a temperature of from 10°C to 30°C.

Claim 18 (original): Process according to Claim 16 or 17, wherein step b) is carried out at a pressure of from 50,000 to 500,000 hPa.

Claim 19 (original): Process of Claim 18, wherein said pressure is from 70,000 to 300,000 hPa.

Claim 20 (**currently amended**): Process according to one of Claims 16 or 17, wherein step c) is carried out at a temperature below the melting point (under standard conditions) of the respective active substance or, in the case of active substance mixtures, below the melting point of the **solid active substance** having the highest melting point.

Claim 21 (original): Process according to Claim 20, wherein said respective active substance or said active substance having the highest melting point has a melting point of from 40°C to 220°C.

Claim 22 (original): Process according to Claim 21, wherein said melting point is from 50°C to 220°C.

Claim 23 (original): Process according to Claim 16 or 17, wherein in step d) the emulsion is homogenized using a jet disperser or other high-pressure homogenizer or a homogenizer operating on the rotor/stator principle.

Claim 24 (**currently amended**): Process according to Claim 23, wherein step d) is conducted with a homogenizer subjecting the dispersion to a pressure difference in the homogenizer **at of** from 40,000 hPa to 1,600,000 hPa.

Claim 25 (original): Process according to Claim 24, wherein said pressure difference is from 50,000 hPa to 1,000,000 hPa.

Claim 26 (**currently amended**): Process for producing pulverulent active substance formulations comprised of:

- particles of at least one active substance A) which is solid at room temperature,
- at least one dispersant B),
- a coating material E), and
- optionally additives C),

wherein the particles of active substance A) are in an amorphous state, have an average diameter of not more than 1 µm, and are coated with coating material E)

said process comprising:

- a) suspending at least one active substance A) which is solid at room temperature, at least one dispersant B), and optionally additives C) in an aqueous phase,
- b) adding at least one compressible fluid D) in the supercritical state under pressure to the suspension formed in a),
- c) heating the mixture formed in b) until the solid components it comprises are liquefied, **to form a dispersion**
- d) homogenizing the **resultant** dispersion **formed in step c) to form a homogenized dispersion,**
- e) mixing the homogenized dispersion with an aqueous solution of coating material E) in a concentration of from 10 to 50% by weight, and optionally with additives C) and then depressurizing the dispersion and subjecting it to drying.

Claim 27 (original): Process according to Claim 16, 17 or 26, wherein said drying comprises spray drying or freeze drying.

Claim 28 (original): Process according to Claim 27, wherein said drying is spray drying.

Claim 29 (original): Process according to Claim 16, wherein in step e) the dispersion from step d) is depressurized at a rate sufficient to expand the compressible fluid and thereby explode the dispersed solid components, and optionally, at the same time is subjected to spray drying with a dry gas.

Claim 30 (original): The process of Claim 29, wherein said dry gas is dry air, nitrogen or a noble gas.

Claim 31 (original): The process of Claim 30, wherein said dry gas is a noble gas.

Claim 32 (original): Process according to Claim 29, wherein said gas is subjected to spray drying in step e), and said spray drying in step e) is carried out at a dry gas entry temperature of from 100°C to 200°C, and a dry gas exit temperature of from 50°C to 100°C.

Claim 33 (original): Process of Claim 32, wherein said spray drying is carried out at a temperature of from 120°C to 180°C, and said dry gas exit temperature is from 60°C to 90°C.

Claim 34 (**currently amended**): Process according to Claim 16, wherein said drying in step e) ~~the water present in the homogenized dispersion from step d)~~ is ~~removed by~~ freeze drying, and water present in said homogenized dispersion is removed by said freeze drying.

Claim 35 (original): Process according to Claim 16, wherein said compressible fluid D) is selected from the group consisting of hydrocarbons having 1 to 6 carbon atoms, Freons, nitrogen, noble gases, gaseous oxides, ammonia, alcohols having 1 to 4 carbon atoms, halogenated hydrocarbons, and mixtures thereof.

Claim 36 (original): Process of Claim 35, wherein said compressible fluid D) is selected from the group consisting of methane, ethane, propane, butane, pentane, n-hexane, i-hexane, nitrogen, noble gases, N₂O, CO₂, ammonia, methanol, ethanol, isopropanol, n-propanol, butanol, halogenated hydrocarbons, and mixtures thereof.

Claim 37 (withdrawn): Method for applying an active substance to a site, which comprises applying said active substance to said site in the form of a pulverulent active substance formulation of Claim 1.

Claim 38 (withdrawn): Method of applying active substances to a targeted organism and/or its habitat, which comprises delivering said active substances to said organism or habitat in the form of the pulverulent active substance formulation of Claim 1, optionally after dilution with extenders and/or surface-active substances.

Claim 39 (withdrawn): Apparatus for carrying out the process according to Claim 16, comprising at least a device for metering a compressible fluid D) under pressure into a pressure-resistant vessel (2) which is provided with a stirrer and is connected via a pump (3) suitable for generating pressure to a heat exchanger (4), to which a homogenizing jet disperser (5), is connected, from which a pipeline closable with a valve leads back into the vessel (2) and from which, optionally, a pipeline leads to a cooling circuit which is provided with a pump and whose outlet line is connected to a metering pump (9) and also, optionally, to a mixing vessel, the pipeline leading on from the latter being connected to a spray dryer (10).

Claim 40 (**currently amended**): Process for producing pulverulent active substance formulations comprised of:

- particles of at least one active substance A) which is solid at room temperature,
- at least one dispersant B),
- a coating material E), and
- optionally additives C),

wherein the particles of active substance A) are in an amorphous state, have an average diameter of not more than 1 μm , and are coated with coating material E)

said process comprising:

- a) suspending at least one active substance A) which is solid at room temperature, at least one dispersant B), at least one coating material E), and optionally additives C) in an aqueous phase,
- b) adding at least one compressible fluid D) in the supercritical state under pressure to the suspension formed in a),
- c) heating the mixture formed in b) until the solid components it comprises are liquefied, **to form a dispersion,**
- d) homogenizing the **resultant** dispersion **formed in step c) to form a homogenized dispersion,** and then
- e) depressurizing the **homogenized** dispersion and subjecting it to drying.

Claim 41 (previously presented): Process according to Claim 16, 26 or 40, wherein dispersant B) is selected from the group consisting of nonionogenic, anionic, cationic, zwitterionic substances having surface active properties.

Claim 42 (**currently amended**): Process according to Claim 16, 26 or 40, which comprises using additives C), wherein additives C) are selected from the group consisting of penetrants, defoamers, low-temperature stabilizers, preservatives, dyes, redispersants, disintegrants, inert fillers and film-formers.

Claim 43 (previously presented): Process according to Claim 16, 26 or 40, wherein said coating material E) is selected from the group consisting of polyvinyl alcohol, polyvinylpyrrolidone and saccharides.

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Claim 44 (previously presented): Process according to Claim 43, wherein coating material E) is a saccharaide selected from the group consisting of grape sugar, cane sugar or a polysaccharide.

Claim 45 (previously presented): Process according to Claim 43, wherein said coating material E) is polyvinyl alcohol.

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